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Theoretically, research management can lead to reduced volume but heightened quality of research publications and to the improvement of a university's competitive position.

# latent functions of research management

by Alvin E. Keaton



Dr. Keaton is head of the department of philosophy at New Mexico State University. His areas of specialty, in addition to philosophy, include sociology and psychology as well as computer science. He has taught college level courses in those areas at New Mexico Highlands University, University of Oklahoma, and Kansas State College. He also taught science and math on the secondary level. His Ph.D. and M.A. degrees are from the University of Oklahoma and his B.S. is from Marshall University in Huntington, West Virginia. Dr. Keaton's interest in sociology and philosophy provides an unusual background for someone who has served extensively as an consultant in computer applications and systems analysis.

C. Wright Mills once said, "Most men experience their lives as a series of traps." Nowhere is this experience more poignant than in the area of policy planning, and no area of policy planning is more replete with the experience of entrapment than is education. Almost without exception, the stated goals of modern educational policy makers have not been achieved.

Today, the failure of educators to achieve the goals of policy makers is perceived as a failure in planning on the part of those who should "translate" vague philosophic ideals into precise goals (e.g., Malek, 1972). As a result, the literature is now full of formulae—monographs on competency-based programs, decision-making strategies, and so on. It is my expectation that "planners" are about to experience another trap.

The point is, planners are currently engaged in setting forth general formulae for implementing general formulae. This practice is nothing but hair of the dog. The problem with the philosophic ideals is not that they are vague but that they are general—and general principles always require interpretation when implementation is undertaken. Furthermore, these interpretations will be made by persons with diverse motives and understandings.

Let us try to approach the problem of improving American education from a different perspective—let us first ask what incentives *presently* exist for introducing an alteration in an institutional structure. Let us then consider the likely effects of the institutional alteration upon the patterns of life and work of individuals who function within that institution.

There are at least six incentives for implementing research management in the university:

- (1) research support personnel can be more effectively deployed;
- (2) research planning will be facilitated;
- (3) both accountability and the appearance of accountability with respect to university-sponsored research will be improved;
- (4) professors not now engaged in research will be encouraged to participate;
- (5) in general, the quality and efficiency of supervision with respect to research support personnel will be improved; and
- (6) the efficiency of professorial research-teaching trade-offs can be improved—this latest will help counter the developing trend of thought in some Federal agencies that they can do needed research more cheaply than can the university.



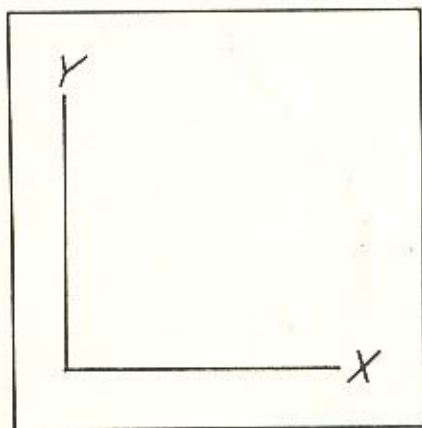


Figure 1

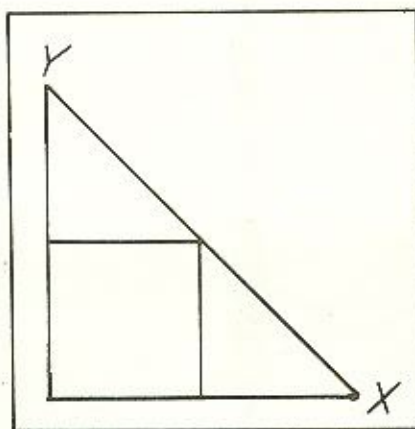


Figure 2

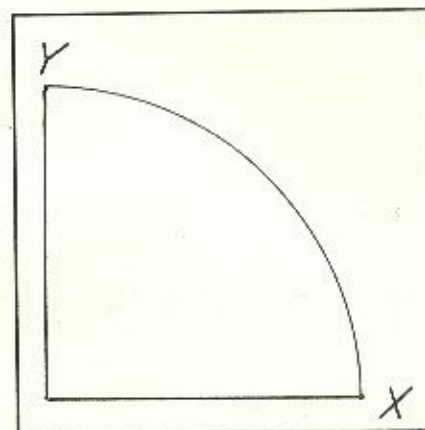


Figure 3

The way in which research is currently carried out on many university campuses makes rather inefficient use of laboratory technicians, secretaries, and other support personnel. A prime cause of this inefficiency is the relatively small size of each research project. The jobs which are created to carry out the project often do not fully occupy an individual for the contracted time block. Furthermore, the need for the employment of certain personnel will vary during the course of many projects and yet individuals must be contracted for the full time if they are to be available when needed.

With a research management program in effect, those persons charged with research management can, in light of ongoing and committed projects, plan projects which will allow utilization of personnel not fully utilized in the ongoing and projected work. Thus, through the facilitation of research planning, made possible through management, research support personnel can be more efficiently utilized.

A research management program, with its planned continuous use of personnel, will allow for the building of complete research support teams. With relatively secure full employment, such personnel will not be subject to the kinds of anxieties and uncertainties which currently exact a cost in terms of morale in many support groups.

Of course, it is quite well known that graduate students employed as part-time support personnel are often expected to plan their studies around the needs of a project they are employed upon. To some extent, this arrangement may reduce the inefficiency discussed in the last two paragraphs above, but under present conditions, no one is held accountable for full value being received for monies paid. Furthermore, if the work demand placed upon a graduate student is uneven over the course of time, then he should be compensated for having to plan his studies and his social life around the demands of the project. In order that the necessary degree of flexibility be maintained and the hourly pay norms currently in vogue be satisfied, job descriptions must have a somewhat vague character and so not only accountability but the appearance of accountability suffers. The current state of affairs thus tends to discredit research within the university in the eyes of persons outside institutions of higher learning. In other words, we are currently unable to legitimate research expenditures.

It is likely that professors not currently engaged in research projects would be more inclined to participate if they could be relieved of the management chores. Furthermore, there is no good reason to suppose that professors, in general, are particularly adroit in either the task or personnel aspects of management. It is understandable that a person will be reluctant to engage in an activity for which he does not consider himself particularly suited. Research management would reduce the personal cost for many able persons in the carrying out of research projects.

While we have no good reason to suppose that professors are particularly adept at managing the activities of research support personnel, we can expect that a person specifically selected for research management will possess above average proficiency in the area. If we cannot make this assumption, then we have little reason for engaging in selection for management in general. At any rate, we educators must assume that there is some positive relation between training and performance.

Relieving the research professor of a task for which he may not be particularly well suited will improve the efficiency of the teaching-research trade off—not only for the obvious reason that part of the work which is now entailed in research would be carried on by someone else, but also because this management aspect of research would no longer intrude upon the teacher's time and thought.

If one accepts the veridical character of the posited incentives for instituting research management within the university, it becomes imperative that we consider the latent effects of such an action. I say imperative because it has become apparent, both to sociologists and to systems analysts, that the altering of forms of work organization can have ramifying consequences far beyond those for which the changes are instituted.<sup>1</sup> These latent consequences of changes in work organization are largely the result of concomitant changes in the social character of work groups and the derivative alteration in interest patterns of individuals.

The long-range effect of instituting an organization within the university community capable of simultaneously realizing the six mentioned incentives will be the accentuation of local rather than cosmopolitan orientation<sup>2</sup> in the members of an academic community. Because universities will be in direct competition with one another as



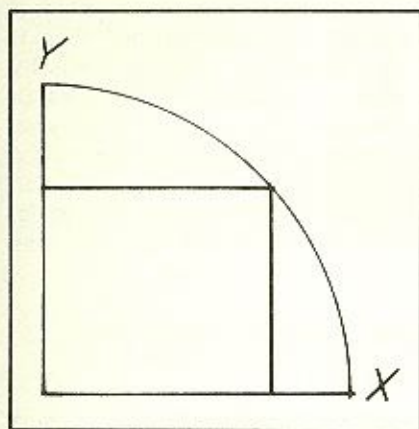


Figure 4

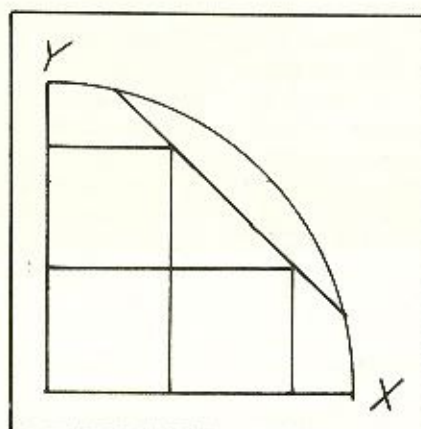


Figure 5

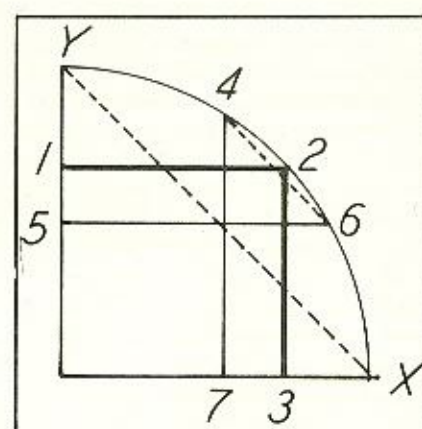


Figure 6

research units, the members of any given university system will become more cohesive; it will be in their interest to function as a team. This assertion will prove to be true because each team member can only satisfy his goal of continued employment on the team by the continued existence of the team.

It should be pointed out that relatively small, highly integrated work groups come in time to satisfy many of the primary social needs of individuals. Research management will have the effect of creating groups wherein membership within the group will itself be rewarding—perhaps, in time, be of even greater consequence than the material benefits derived from membership. When this is the case, group norms come into being which are intolerant of individual actions detrimental to group interests.

The development of cohesive research teams whose members are locally oriented will increase interuniversity competition for scarce resources (the public funds). Because of the diverse and intermittent character of public funding in the foreseeable future, research management and its attendant latent effects will very probably bring into being omnivorous research organizations. Perhaps an explication of why such "omnivorous" organizations will be best suited for competition under conditions which will prevail in the near future will bring into clearer focus some of the latent functions of research management.

If we imagine a group organized to produce only guns, it can, with all members participating, produce  $x$  number of guns. If a group is devoted to only the production of butter, it can produce  $y$  amount of butter. If these commodities are exchangeable in a fixed ratio and if we then represent the possible number of guns produced on one axis and the amount of butter on the other (see Fig. 1), we can calculate the unspecialized trade-off possibilities between the two commodities. This is accomplished by completing the hypotenuse (as shown in Fig. 2) and then, choosing a given amount of one commodity, erecting a perpendicular at that point and dropping a perpendicular upon the other axis from the point where our line intersects the hypotenuse.

Samuelson<sup>3</sup> argues that by selective employment of persons better suited to one task or the other, the true production possibility frontier under optimization becomes an arc (see Fig. 3) so that there is a differential trade-off be-

tween guns and butter, as is shown in Figure 4. This last figure summarizes most of the argument in support of a pluralistic specialization. But there is a flaw in the picture: The price optimization is a loss of rapid response on the part of the group to changes in external conditions because work patterns are institutionalized within the group. If we compare Figure 4 to Figure 2, we note that the production possibility frontier in the unspecialized society forms a secant to that of the specialized group. This suggests how we might estimate the trade-off between rapidity of response and optimized exploitation of a given demand mix. If we take a secant farther out on the curve representative of the production possibility frontier, as in Figure 5, we devise a representation of the gain in flexibility to exploit at near maximum a full half of the potential demand mix range.<sup>4</sup>

Thus, the cadre of unspecialized research support personnel, which are compatible with and perhaps even germane to a viable research management program, will have a vital function for the university as it attempts to accommodate to the structural demands of the larger society.<sup>5</sup> Needless to say, these capacities of a system to accommodate to the demands of a larger system, which are conferred upon the accommodating system by some one of its subsystems, are what we mean when we refer to the latent functions of the subsystem.

Another important latent function of the institution of research management within the university will be the improvement in the quality and decrease in volume of research publications. This improvement will come about in the following way: Under conditions of competition between highly cohesive research teams, it is almost inevitable that research journals and other publications will be captured by some one of the competing groups. Since no group will then want to see work which might discredit that group published and because each group will have a stake in discrediting other groups, articles will be more closely examined prior to publication than is now the case.

Also, because the members of highly integrated research teams will be able to assay directly the worth of each team member to the group as a whole, there will be no need to employ such spurious evaluative criteria as number of publications. Thus both the opportunity and motivation to publish everything which a person can get published,



regardless of its quality, will be greatly diminished.

If research management results in even minimal improvements in the quality of research, while at the same time reducing the volume of research publications, the effect on the research and development effort in our society will be startling. Suppose (case 1), for instance, that 20 percent of the research articles which are currently published contain a significant fact. Suppose further, that an individual in some given discipline reads, on the average, 40 percent of the total publications for his discipline. On the assumption that he will encounter informative articles with the same frequency that they are represented in the population of articles, we can expect a given individual to encounter eight significant articles per one hundred available.

If now (case 2) the volume of publications could be reduced by 50 percent while the quality improved only to the point where 30 percent of published articles contained a significant fact, then, with the same reading rate, the average worker would cover 80 percent of the published literature. On the average, each worker would encounter, as a consequence, twelve significant articles. While in moving from case 1 to case 2 there is a 17 percent loss in significant articles within the total system, each worker, nevertheless, becomes acquainted with 50 percent more significant articles. At first glance, it would appear that we have enriched the individual worker at the expense of the total information wealth of the system. I shall contend that this is true only in the short run.

Few of us would dispute the assertion that verbal interaction with fellow researchers can contribute to productive research. Consider the nature of verbal interaction under cases 1 and 2: In case 1, and accepting its assumptions for the sake of example, the average worker will have in his possession information from eight significant articles out of a population of one hundred. Therefore, if two workers attempt to converse, the facts from a maximum of only 16 percent of significant articles available can be held in common. In case 2, 48 percent of significant facts will be held in common. Thus, we may conclude that the probabilities of fruitful interaction will be three times as great in the second case as in the first case. We might, therefore, expect that the increased incidence of fruitful researcher interaction and concomitant increase in research production would, in the long run, more than offset the initial loss in total system facts in going in case 1 to case 2.

## tenure and due process

*continued from page 14*

terminated. It would seem prudent for institutions to provide a due process hearing to any faculty member who requests one or who challenges the decision to terminate the status of tenure or a contract. Under the developing law of due process, the status of tenure and even continuing contracts has been given new legal significance in light of the fact that "expectancy of re-employment" now constitutes a new kind of property right that institutions cannot capriciously take away.

In closing, consider an incentive for research management of an entirely different order than those already described. If the institution of research management within a university should give that university a competitive edge, either real or apparent, over other universities; then, in order to survive, the other universities will have to conform. Furthermore, a competitive edge, once established, can be used to obtain an even greater competitive edge. Consequently, we can expect that those institutions which are first in the field will have every opportunity to remain first in the field.

## FOOTNOTES

1. For example, see F. J. Roethlisberger and W. J. Dickson, *Management and the Worker* (Harvard University Press, 1939); and Peter Blau, *Exchange and Power in Social Life* (New York: John Wiley & Sons, 1964); also, *The Dynamics of Bureaucracy* (Chicago: The University of Chicago Press, 1955).

2. Robert Merton's distinction.

3. Paul A. Samuelson, *Economics*, Chap. 2 (New York: McGraw Hill, 1970).

4. This idea is developed in W. Ross Ashby's *Design for a Brain* (London: Chapman and Hall, 1966).

5. Herbert A. Simons' discussion of vertical and horizontal division of labor, control versus task efficiency is worth thinking about in this connection. See "The Proverbs of Administration," *Public Administration Review*, 1946.

## in-service programs

*continued from page 16*

service programs, the specific details and guidelines of such a procedure should be formulated jointly by teachers and supervisors. A program as outlined requires considerable record keeping, but the advantages to be gained far outnumber the disadvantages to be encountered. In a given school district, the procedure could be handled at each building by a teacher committee operating under the guidelines of the district-wide policy. Such a local committee could decide, for example, that a 5th grade teacher who traveled in Yosemite National Park and took slides for use next year in a social studies unit had met his requirement of in-service credit. Each teacher's in-service record would eventually be submitted to the central administrative office.

## Summary

The steps in providing a relevant in-service program for teachers involve 1) the assessment of areas in which teachers wish to receive help, 2) providing alternative ways for teachers to participate, 3) utilizing an in-service bulletin to announce the various programs, 4) utilization of teacher leaders to prepare and present in-service programs, 5) involvement of teachers in formulation of a policy of utilizing in-service credit for salary increments. These steps provide for an in-service program based on assessed needs rather than on outside prescribed topics.